Graziers: Legumes are the best option to address sown pasture rundown

Stuart Buck[A D], Brian Johnson[B], Joe O'Reagain[B], Gavin Peck[B] and Gina Mace[C]

[A]Department of Agriculture and Fisheries, PO Box 6014, Rockhampton, Qld 4701
[B]Department of Agriculture and Fisheries, PO Box 102, Toowoomba, Qld 4350
[C]Department of Agriculture and Fisheries, PO Box 310, St George, Qld 4487

Introduction

Sown pasture grasses are very productive when planted after clearing or into fertile cropping soils. However, over time dry matter production and animal performance decline as soil nitrogen availability to pasture grasses declines, a phenomenon often described as "pasture rundown" or more correctly "nitrogen tie-up". This paper discusses the large industry interest in this issue and the management options graziers deem to be the most appropriate for dealing with nitrogen tie-up.

Methods

Graziers and industry personnel were engaged at a range of forums where information about nitrogen tie-up was delivered. At workshops outlining causes, costs and management options, demographic information was collected including area of sown and native pastures and numbers of stock managed. Further, insights as to what graziers assess as the most appropriate way to improve productivity of pastures suffering from nitrogen tie-up on their own properties was collected.

Results and Discussion

A total of 465 people, managing over 820,000 ha of sown and 895,000 ha of native pastures with more than 291,000 head of cattle, attended workshops between 2011 and 2016. An assessment of intended methods to address nitrogen tie-up were collected from 237 attendees, and indicated that graziers consider increasing nitrogen supply as the most appropriate strategy. Increasing nitrogen supply through the use of legumes is clearly the most commonly intended management technique, followed by mechanical renovation to increase nitrogen cycling. Applying nitrogen fertiliser was more popular than changing grazing management, possibly because reducing stocking rates is regarded as not addressing the underlying cause (Table 1).

Table 1. Grazier assessment of the intended strategies and techniques to deal with nitrogen tie-up.

Overall strategy	Management technique	% of respondents
Accept rundown and lower productivity	Break up new country if available	2
	Purchase more land	1
	Reduce stocking rates	5
Increase nitrogen cycling	Mechanical renovation	35
	Chemical renovation	2
Increase nitrogen supply	Apply nitrogen fertiliser	27
	Introduce legumes	84

Conclusion

These engagement activities confirm that productivity decline due to nitrogen tie-up in sown grass pastures is a significant problem across large areas of southern and central Queensland. Large numbers of graziers are seeking information, and the majority identify introducing legumes as the most appropriate way to increase productivity.

[D]Corresponding author: stuart.buck@daf.qld.gov.au